**I-M.Tech(CSE)-AOS(1.6)**

**M.Tech(CSE) 1st Semester Examination -2019**

**Sub: Digital Signal Processing**

**Full Mark – 70 Time: 3Hrs**

**(Answer all questions. Figure in the right hand margin indicates marks.)**

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| 1. | (a) | Discuss different design approaches for operating systems. | [7] |
|  | (b) | Explain message passing communication model used in distributed systems. What are the drawbacks of this system? | [7] |
| OR |  |
|  | (a) | How does a vector clock is different than a Lamport’s clock. Write down the representation and implementation rules for the vector clock. | [4] |
|  | (b) | Explain Chandy-Lamport’s Global State Recording Algorithm with a suitable example. | [10] |
| 2. | (a) | Why it is difficult to achieve mutual exclusion in case of a distributed system as compared to single-processor system? What are the requirements from a mutual exclusion solution? | [4] |
|  | (b) | Explain Lamport’s algorithm for mutual exclusion with a suitable example. What optimization can made to this algorithm and why? | [10] |
| OR |  |
|  | (a) | Explain different metrics used to measure the performance of a mutual exclusion algorithm | [4] |
|  | (b) | Write and explain Raymond’s Tree based algorithms for distributed Mutual exclusion with a suitable example | [10] |
| 3. | (a) | Differentiate Resource and communication deadlocks in distributed system. Explain different approaches used for distributed deadlock handling. | [7] |
|  | (b) | Explain Ho-Ramamoorthy’s 2-phase algorithm used for deadlock detection | [7] |
| OR |  |
|  |  | What are the different data structures used in Chandy-Misra-Haas’s Edge-Chasing Algorithm? Write down the algorithm and its performance. | [14] |
| 4. | (a) | What is a distributed file system? Explain the architecture and data access steps for distributed file system. | [7] |
|  | (b) | Discuss *Caching*, *Writing Policy*, and *Cache Consistency* design issues in distributed file system | [7] |
| OR |  |
|  | (a) | Explain the architecture of distributed shared memory. What are the advantages of using DSM over a message passing system | [4] |
|  | (b) | What is memory coherence? Discuss different forms of memory coherence | [10] |
| 5. | (a) | How the distributed scheduling is different than uni-processor scheduling? What is load? Write down the classification load distribution algorithms.  | [7] |
|  | (b) | Discuss sender initiated load distributing algorithm with a flow diagram | [7] |
| OR |
|  | (a) | Discuss different components of a load distributing algorithm | [7] |
|  | (b) | Discuss Above-average symmetric load distributing algorithm.  | [7] |